

What is claimed is:

1. A method of quantitatively assessing the vulnerability of an elementary network unit, including at least one host, in which the state of, and application bound to, each port is known, the method comprising:

classifying each port on each host in the elementary network unit; and

determining a quantitative vulnerability rating for the elementary network unit in accordance with the classification of each port on each host in the elementary network unit.

2. The method of claim 1, wherein classifying each port includes:

determining a network vulnerability rating for each port;

determining an application vulnerability rating for each port; and

determining a port status rating for each port.

3. The method of claim 2, wherein the network vulnerability rating is derived from the status of each port, and the application bound to it.

4. The method of claim 2, wherein determining the quantitative vulnerability rating for the elementary network unit includes:

determining, for each port, a port vulnerability rating as a function of the network vulnerability rating, the application vulnerability rating and the port status rating;

determining, for each host in the elementary network unit, a host vulnerability rating as a function of the port

vulnerability rating for each port associated with the host;  
and

determining the quantitative vulnerability rating for the elementary network unit as a function of the determined host vulnerability ratings for each host in the elementary network unit.

5. The method of claim 2, wherein the network vulnerability rating is determined by network protocol conventions regarding the assignment of ports.

6. The method of claim 2, wherein the application vulnerability rating is determined by the application bound to the port.

7. The method of claim 6, wherein the application vulnerability rating is further determined by a version of the application.

8. The method of claim 6, wherein the application vulnerability rating is further determined by an operating system associated with the application.

9. The method of claim 2, wherein the port status rating is determined by the state of the port.

10. The method of claim 9, wherein the state of the port is selected from open, closed and filtered.

11. A application program for quantitatively assessing the vulnerability of a computer network based on the state of, and application bound to, each port received from a network

scanning application, the computer network being logically grouped into at least one elementary network unit having at least one host, comprising:

classification means for classifying each port on each host in the elementary network unit; and

means for determining a quantitative vulnerability rating for the elementary network unit in accordance with the classification of each port on each host in the elementary network unit.

12. The application program of claim 11, wherein the classification means includes means for determining a network vulnerability rating for each port; means for determining an application vulnerability rating for each port; and means for determining a port status rating for each port.

13. The application program of claim 12, wherein the means for determining a quantitative vulnerability rating for the elementary network unit includes:

means for determining, for each port, a port vulnerability rating as a function of the network vulnerability rating, the application vulnerability rating and the port status rating;

means for determining, for each host in the elementary network unit, a host vulnerability rating as a function of the port vulnerability rating for each port associated with the host; and

means for determining the quantitative vulnerability rating for the elementary network unit as a function of the host vulnerability rating for each host in the elementary network unit.

14. A graphical representation for displaying computer network vulnerability, comprising:

a plot of the computer network divided into elementary network units, each elementary network unit having a quantitative vulnerability rating.

15. A method for evaluating risk in a computer network, the computer network having at least one elementary network unit, comprising:

determining a quantitative vulnerability rating for each elementary network unit;

determining a risk associated with the computer network as a function of the quantitative vulnerability rating.

16. The method of claim 15, wherein determining the risk includes aggregating the quantitative vulnerability rating for each elementary network unit.

17. The method of claim 15, wherein determining the risk includes comparing the quantitative vulnerability rating of the elementary network unit to a benchmark.

18. The method of claim 15, wherein determining the risk includes comparing the quantitative vulnerability rating of the network to a benchmark.

19. The method of claim 1 wherein the application is a service.